

ColdLogik

CASE STUDY



ARM Holdings HQ, Cambridge

New Build High Density Data Centre

2012

uSystems
A brand of **legrand**

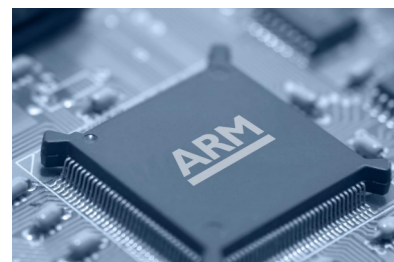
ARM

The Client

The world's leading semiconductor intellectual property (IP) supplier ARM is at the heart of the world's most advanced digital products. Their technology enables the creation of new markets and transformation of industries and society.

They design scalable, energy efficient-processors and related technologies to deliver the intelligence in applications ranging from sensors to servers, including smart phones, tablets, enterprise infrastructure and the Internet of Things.

Their innovative technology is licensed by ARM Partners who have shipped more than 50 billion Systems on Chip (SoCs) containing their intellectual property since the company began in 1990. In 2012 ARM chips were used in over 85% of all smart phones produced in the world.



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The Brief

In 2012 ARM Holdings required a new one-megawatt high density green data centre at their Cambridge headquarters. It needed to occupy the smallest footprint possible on an existing brownfield area within the grounds.

The build, commissioning and handover had to be complete within only three months of the approved design. The remit incorporated a Tier 3 rating requirement with the lowest possible PUE for the cooling solution. An average of 16kW capacity per rack - capable of reaching 23kW with no detrimental effect to the IT equipment or room environment.

Finally, this system had to be monitored locally and remotely with full access and control.

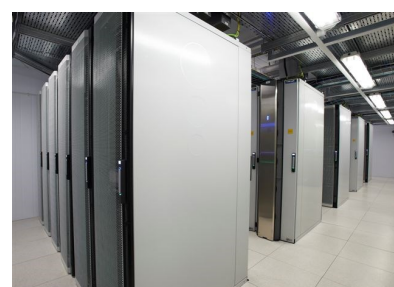


Data centre and cooling towers to be build in the small 'brown field' space in overspill car park area of ARM Holdings HQ in Cambridge

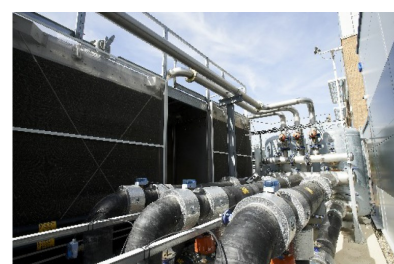
The Cooling Solution

The design comprised of sixty USpace 48U 600 x 1200 ColdLogik compliant cabinets placed onto a raised floor in a space of only 7.5m x 13m. Sixty ColdLogik CL20 C12 Rear Door Coolers were fitted onto the cabinets complete with negative pressure hoses and flow control valves.

Complementing the CL20 rear coolers were 3 x 500kW cooling towers (run and stand-by), which were chosen for their energy efficiency, capital cost and crucially their footprint, which took up no more than 12m x 4m - to provide the client with peace of mind throughout the data centre the patented Leak Prevention System was included in this space joining together the cooling towers and data centre pipe work. Key to the energy performance of this solution was the fact that no mechanical cooling was used.



The Data Centre 'white space' featuring USpace cabinets and ColdLogik RDC



Part of the LPS pipe work

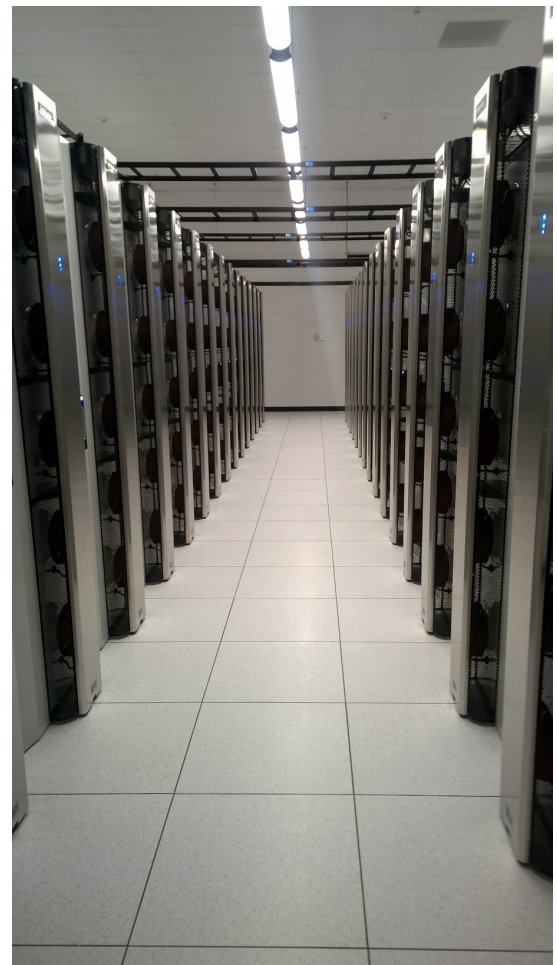
Award winning design

Due to the phenomenal energy savings and state of the art cooling design, this data centre has received numerous awards in recognition of its unrivalled performance and innovation.



A PUE of 1.045 demonstrated on full load with a current load at 68% with PUE 1.08-1.16

“Due to the uncompromising success of the Cambridge HQ new build data centre, ARM commissioned a further two more 1MW data centre housed within a Digital Realty Trust co location site in Austin Texas in 2013 based on the original ColdLogik Cambridge project design, as this was the only solution which could offer both efficient cooling within such a small footprint.”



Project Summary

Energy efficiency and cost savings

- Low CAPEX and fast ROI
- Low PUE
- Year on year energy savings
- Low carbon
- No mechanical cooling
- Reduced footprint
- High water supply temperature
- Security and control
- LPS added leak prevention safety
- RMS full access and remote monitoring and control
- Tier 3 (N+1) redundancy

UPDATE In 2016 the data centre was 4 years old. The cooling plant shows 25-44kW power draw for an IT load of 650-750kW (actual power figures). The ColdLogik systems has allowed several IT updates within the data centre (blade upgrades, two storage updates etc.) without affecting the data centre ColdLogik cooling system.

To learn more visit :

www.legrand.com/datacenter

 **Legrand Data Center Solutions**

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